

## CHAPTER 1. INTRODUCTION

### a. General

The purpose of the studies is to determine current and future development requirements of Phoenix-Deer Valley Airport over the next 5, 10 and 20 year periods, and to prepare a land use plan for the Airport and its environs. Figure 1-1 shows the location of the airport.

This update of existing plans was prompted by the concern that:

- the previous master plan was prepared in 1972 and is somewhat dated;
- the airport lies in a corridor of rapid industrial, commercial and residential growth, and its integrity could be affected by its environment unless plans for maintaining a compatible situation are adopted;
- recent studies of regional demand for airport facilities have raised the issue of the purpose and best role for Deer Valley Airport in the Phoenix area.

To respond to these concerns and to meet the objectives of the study, a program addressing the following technical tasks was defined:

1. Airport Master Plan and Airport Layout Plan.
2. Land Use Plans (on-airport and off-airport).
3. Aircraft Noise Study.
4. Environmental Study (for proposed short-term improvements).
5. Airport Height Zoning Ordinance (to protect navigable airspace).

The program was conducted in the period October 1984 to February 1986 and was accompanied by a series of meetings with Aviation Department, FAA, City agencies, user groups at the airport, and the Deer Valley Village Planning Group. The assistance of these groups was an essential part of the process, and the guidance and advice provided was instrumental in the successful completion of the program.

### b. Guidelines and Policies

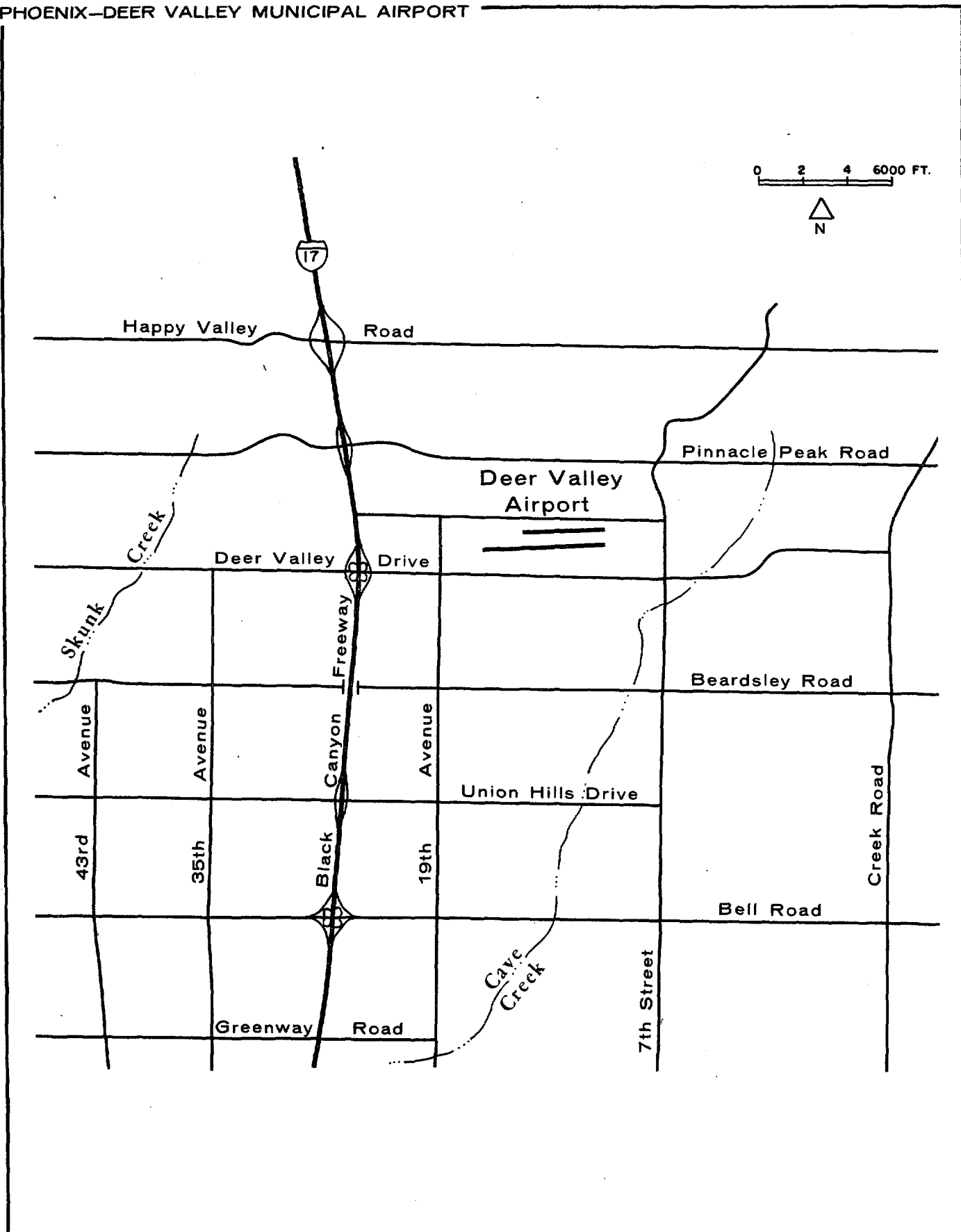
In preparation of the plans, the following assumptions were made:

- that the role of the airport will be that of a general aviation reliever airport. Increasing demand from corporate aviation, including business jet activity, will be accommodated as demand for this element of general aviation increases in the Deer Valley area. Scheduled commuter passenger service will remain centered at Phoenix Sky Harbor Airport to maintain the connections with the major airlines which are so important to that type of air service. While commuter activity of this type by small aircraft (up to 15 seats)

VICINITY MAP

Figure 1-1

PHOENIX-DEER VALLEY MUNICIPAL AIRPORT



could occur later in the planning period without significant changes in the aircraft noise environment or existing physical facilities, this type of activity is not anticipated. Expansion of existing terminal and support facilities to serve this activity will not be planned for in the current planning program.

- that the unconstrained demand forecasts presented in the Maricopa Association of Governments (MAG) Regional Airport Study are a valid and realistic assessment of future demand at Deer Valley Municipal Airport. (This issue is discussed in Chapter 3 "Forecasts of Aviation Activity".)
- that forecasted demand for general aviation facilities beyond that which can be provided on the airport will be met at other existing airports in the region or at a new general aviation airport in this region.

### c. Critical Planning Factors

There are two issues of overriding importance in determination of the scale and location of facilities on the airport, which must be addressed prior to further discussion of the future. These are:

- feasibility of construction of a third parallel runway, and
- availability of additional land areas for airport development.

These factors are evaluated and discussed below.

#### Construction of a Third Parallel Runway

The existing two-runway system at Deer Valley will not meet the needs of the unconstrained forecast for demand beyond 1997.<sup>1</sup> Therefore, the possibility of adding a third parallel runway on the airport was investigated to determine if additional capacity could be provided by this means.

Because of the extensive hangar development south of Runway 7R-25L, any additional runways would have to be constructed on the north side of Runway 7L-25R. The minimum spacing between a new runway and Runway 7L-25R would be 700 feet; this separation would both minimize additional land acquisition and provide aircraft using the new runway with the best terrain clearance. The runway ends would have the same general east-west coordinates as Runway 7L-25R, so as to not encroach into the area set aside for industrial park development.

With a new runway in this optimum location, terrain avoidance would still be a very serious problem. East of the airport, the extended runway centerline would pass within 500-800 feet laterally of two areas of high ground within two miles of the runway end, as shown on Figure 1-2.

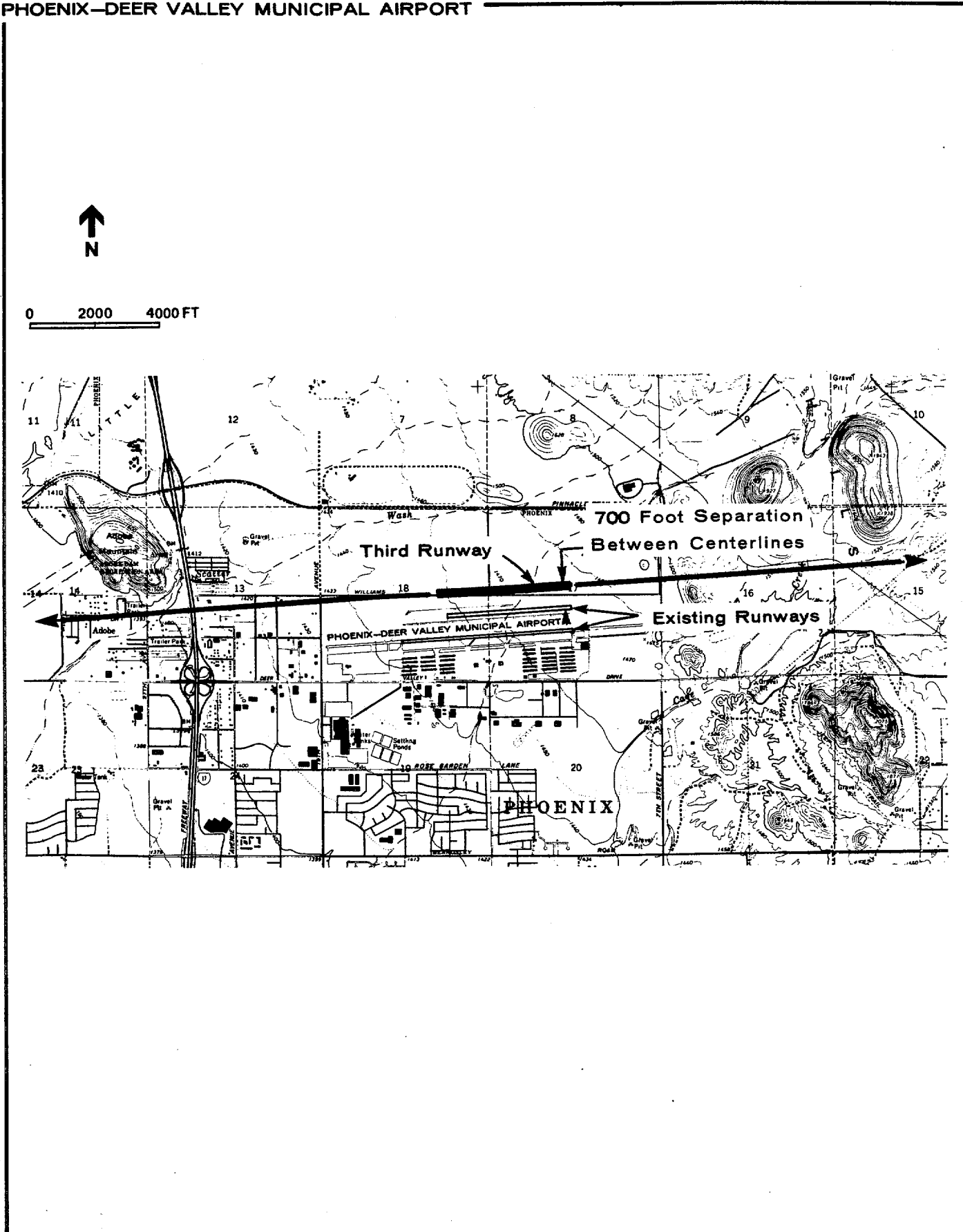
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<sup>1</sup>See analysis of Airfield Capacity and Unconstrained Forecasts, Chapter 3.

# POSSIBLE LOCATION OF THIRD PARALLEL RUNWAY

FIGURE 1-2

## PHOENIX-DEER VALLEY MUNICIPAL AIRPORT



The effects of this high terrain close to the extended centerline include:

- aircraft departing to the east on a hot day would pass within 1000 feet laterally of terrain which is higher than the altitude of the aircraft;
- aircraft arriving from the east would pass within 1500 feet laterally of terrain which is higher than the altitude of the aircraft;
- in order to obtain the full capacity of the third runway, there would need to be three separate arrival/departure streams flying through a 4000-foot wide valley between two areas of high elevation east of the airport. This would result in reduced safety margins for aircraft operations in this area;
- procedures that would need to be implemented to improve these safety margins would reduce the capacity gains resulting from the additional runway by a significant amount;
- the existing violations of the airport's FAR Part 77 Imaginary Surfaces<sup>1</sup> by high terrain east and west of the airport would be more critical due to proximity of the violations to the approach surfaces of the new runway;
- the elevated areas east of the airport would violate TERPS<sup>2</sup> departure surfaces off the new runway.

The problem of the high terrain and the associated serious safety questions effectively make the construction of a runway to the north undesirable and unfeasible. It should be noted that, even if these factors could be satisfactorily addressed, construction of the third runway would require acquisition of additional land at high cost to accommodate the new pavement and clear zones.

Additional capacity for the regional airport system can be obtained in a more cost-effective manner and without creating a hazardous operational situation, by making the same investment in design and construction of a runway of this category at a new or another existing airport.

It is recommended, therefore, that the concept of a third parallel runway to the north of the existing parallel pair be eliminated from further consideration.

#### Availability of Additional Land Areas for Airport Development

Available land adjacent to Deer Valley is as follows:

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<sup>1</sup> Federal Aviation Regulation surfaces that define obstructions to air navigation in the vicinity of an airport.

<sup>2</sup> Terminal Instrument Enroute Procedures, which establish minimum obstruction clearance requirements for flights under IFR flight rules.

- (a) Parcel at southwest corner of airport, intersection of 19th Avenue and Deer Valley Drive; in private ownership, approximately 29.2 acres.
- (b) Parcel at southeast corner of airport, intersection of 7th Street and Deer Valley Drive; in private ownership, approximately 53.6 acres.
- (c) Parcel at northeast corner of airport, fronting 7th Street; in private ownership, approximately 7 acres.
- (d) Parcel at northwest corner of airport, fronting 19th Avenue; in private ownership, approximately 46 acres.
- (e) Parcel on northeastern perimeter of airport, fronting 7th Street and Pinnacle Peak Road. This "L" shaped area is in State ownership and has been the subject of discussion between the City and State for transfer for airport development purposes. Approximate area is 233.3 acres, of which 175 acres is currently being sought for airport development.
- (f) Parcel of land bounded by Pinnacle Peak Road, 19th Avenue, the northern boundary of parcel (d), the northern boundary of the airport, and the western boundary of parcel (e). This is privately owned and is approximately 300 acres in size.

The most readily available of these properties is parcel (e), since it is in State ownership and it appears that some or all of this area will be required for airport development. The costs of purchase of the parcels in private ownership would be substantially greater than that of acquisition of the State-owned properties, but the possibility of purchase of these areas will be left open pending determination of land requirements to meet firmly identifiable needs, and for future contingencies. Purchase of additional portions of parcel (f) may also be indicated to meet these future land requirements.

There is ample undeveloped land available adjacent to current airport boundaries to meet predictable needs. The planning recommendations will identify specifically which areas should be acquired. The land is available today; by the time that long-term needs materialize, the land may no longer be available and, if it is, it will certainly be very expensive. For this reason, the recommendations will include purchases of lands to meet long-term needs and reasonable contingencies beyond firmly predicted needs.